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(54) Title: ALDEHYDE DEHYDROGENASE

(57) Abstract: The present invention concerns a novel aldehyde dehydrogenase having the following physico-chemical properties: a molecular weight of $190,000 \pm 15,000$ Da which comprises a subunit structure of two α subunits and one β subunit, or a molecular weight of $250,000 \pm 20,000$ Da which comprises a subunit structure of two α subunits and two β subunits, in which the α subunit has a molecular weight of $75,000 \pm 3,000$ Da and the β subunit has a molecular weight of $55,000 \pm 2,000$ Da; dehydrogenase activity on L-sorbose, D-glucosone, D-glucose and D-xylose; utilizes as cofactor pyrroloquinoline quinone and heme c; has an optimum pH of from about 6.5 to about 8.0 for the production of vitamin C and an optimum pH of about 9.0 for the production of 2-keto-L-gulonate acid from L-sorbose; and is inhibited by Co^{2+} , Cu^{2+} , Fe^{3+} , Ni^{2+} , Zn^{2+} , Mg^{2+} , monoiodoacetate, and sodium azide.